

What is claimed is:

1. An agent-containing reservoir for incorporation into an electrotransport delivery system adapted to be placed in agent-transmitting contact with a subject body surface for delivering the agent through the body surface by means of an electrotransport current ( $i$ ) applied to the reservoir via a reservoir-contacting electrode, the reservoir being permeable to electrically assisted flux of the agent and having:
  - (a) a predetermined volume that holds a quantity of the agent sufficient to achieve therapeutically effective delivery of the agent during the entire intended duration of use, wherein the predetermined volume for a given reservoir thickness is defined by the reservoir average cross-sectional area  $A_{RES}$ ;
  - (b) a surface that is placed in contact with the body of the subject during use, the body-contacting surface having an area  $A_{BODY}$  that provides at least one of
    - (i) a reservoir/body surface current density  $I_{BODY}$ , wherein  $I_{BODY} = i/A_{BODY}$ , greater than a minimum current density level above which electrotransport delivery Rate/ $i$  is approximately maximal and substantially independent of current density occurring at the body-contacting surface during therapeutic use of the device, and
    - (ii) a drug flux  $j$  that is biocompatible; and
  - (c) a surface in contact with the electrode, the electrode-contacting surface having an area  $A_{ELECTRODE}$  that provides a reservoir/electrode current density  $I_{ELECTRODE}$ , wherein  $I_{ELECTRODE} = i/A_{ELECTRODE}$ , that results in at least one of
    - (i) a desired electrochemical reaction along the electrode-contacting surface, and
    - (ii) avoidance of undesired polarization along the electrode-contacting surface.
2. The reservoir of claim 1, further comprising a masking means on the body surface-contacting surface by which  $A_{BODY}$  is defined wherein  $A_{BODY}$  and  $A_{RES}$  are different.

3. The reservoir of claim 1, wherein the reservoir further comprises an inert filler material.

5 4. The reservoir of claim 3, wherein the inert filler material is selected from the group consisting of wax, polytetrafluoroethylene, glass beads, polymer meshes, polymer powders, polymer beads, polymer solids, cellulose polymers, mineral fillers, and mixtures thereof.

10 5. An electrotransport system for delivering an agent through a subject body surface, comprising

a controller for generating and/or controlling an electrotransport current

(i) adapted to be separably coupleable to at least two different types of agent-containing reservoirs, one agent-containing reservoir at a time, the at least two different agent-containing reservoirs containing distinct amounts of a single therapeutic agent formulation to achieve different dosing levels, the controller applying the electrotransport current (i) to respective reservoirs in the different types of agent-containing reservoirs via a reservoir-contacting electrode, wherein the respective reservoirs in the different types of agent-containing reservoirs each have:

20 (a) a predetermined volume that holds a quantity of the agent sufficient to achieve therapeutically effective delivery of the agent during the entire intended duration of use, wherein the predetermined volume, for a given reservoir thickness is defined by the reservoir average cross-sectional area  $A_{RES}$ ;

25 (b) a surface that is placed in contact with the body of the subject during use, the body-contacting surface having an area  $A_{BODY}$  that provides at least one of

(i) a reservoir/body surface current density  $I_{BODY}$ , wherein  $I_{BODY} =$

$i/A_{BODY}$ , greater than a minimum current density level above which electrotransport delivery Rate/ $i$  is approximately maximal and substantially independent of current density occurring at the body-contacting surface during therapeutic use of the device, and

(ii) a drug flux  $j$  that is biocompatible; and

(c) a surface in contact with the electrode, the electrode-contacting surface having an area  $A_{ELECTRODE}$  that provides a reservoir/electrode current density  $I_{ELECTRODE}$ , wherein  $I_{ELECTRODE} = i/A_{ELECTRODE}$ , that results in at least one of

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(i) a desired electrochemical reaction along the electrode-contacting surface, and

(ii) avoidance of undesired polarization along the electrode-contacting surface.

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wherein  $A_{BODY}$  and  $A_{RES}$  are different between the distinct agent-containing reservoir types.

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6. The electrotransport system of claim 5 wherein at least one of said reservoirs further comprises a masking means on the body-surface contacting surface by which  $A_{BODY}$  is defined, wherein wherein  $A_{BODY}$  is smaller than  $A_{RES}$ .

7. The system of claim 5, wherein the reservoirs have the same thickness.

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8. The system of claim 5, wherein the reservoirs have different thicknesses.

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9. The system of claim 5, further comprising a coupler for separably coupling the controller to any one agent-containing reservoir and providing electrical and mechanical connection of the controller to the agent-containing reservoir.

10. The system of claim 9, wherein the controller is capable of providing a single current output.

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11. The system of claim 9, wherein the controller is capable of providing multiple current outputs.

12. The system of claim 9, wherein each of the different types of therapeutic agent-containing reservoirs provides a signal to the controller related to the dosage of the therapeutic agent to be delivered.

5           13. The system of claim 12, wherein the controller includes a receiving means for receiving the signal and selecting the output of the controller in response to the signal.

10          14. The system of claim 12, wherein the signal comprises an optical signal.

15          15. The system of claim 12, wherein the controller further includes a capacitance sensor which senses a capacitance signal provided by the therapeutic agent-containing reservoir.

15          16. The system of claim 12, wherein the signal comprises a coded signal from an electro-mechanical connector, the electro-mechanical connector functioning to mechanically and electrically couple the therapeutic agent-containing reservoir to the controller.

20          17. A set of therapeutic agent-containing reservoirs for use in an electrotransport drug delivery device, each of said reservoirs in the set containing a distinct amount of a single therapeutic agent formulation to achieve different dosing levels, wherein the respective reservoirs in the set each have:

25          (a) a predetermined volume that holds a quantity of the agent sufficient to achieve therapeutically effective delivery of the agent during the entire intended duration of use, wherein the predetermined volume for a given reservoir thickness is defined by the reservoir average cross-sectional area  $A_{RES}$ ;

30          (b) a surface that is placed in contact with the body of the subject during use, the body-contacting surface having an area  $A_{BODY}$  that provides at least one of

               (i) a reservoir/body surface current density  $I_{BODY}$ , wherein  $I_{BODY} = i/A_{BODY}$ , greater than a minimum current density level above which

electrotransport delivery Rate/i is approximately maximal and substantially independent of current density occurring at the body-contacting surface during therapeutic use of the device, and

(ii) a drug flux  $j$  that is biocompatible; and

- 5 (c) a surface in contact with the electrode, the electrode-contacting surface having an area  $A_{ELECTRODE}$  that provides a reservoir/electrode current density  $I_{ELECTRODE}$ , wherein  $I_{ELECTRODE} = i/A_{ELECTRODE}$ , that results in at least one of
- (i) a desired electrochemical reaction along the electrode-contacting surface, and
- 10 (ii) avoidance of undesired polarization along the electrode-contacting surface.

18. The system of claim 17 wherein at least one of said reservoirs comprises a masking means on the body surface-contacting surface by which  $A_{BODY}$  is defined, wherein  $A_{BODY}$  is smaller than  $A_{RES}$ .

19. The system of claim 17, wherein the reservoirs have the same thickness.

20. The system of claim 17, wherein the reservoirs have different thicknesses.